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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/524,622

03/17/2005

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F-8590

8430

28107 7590 09/10/2008
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EXAMINER

KERNS, KEVIN P

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

09/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/524,622	Applicant(s) OGATA ET AL.	
	Examiner Kevin P. Kerns	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) 6-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1 and 3-13 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 6-13 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

This application contains claims directed to the following patentably distinct species:

I. Claims 1 and 3-5, drawn to methods of producing an immersion nozzle that include the steps of burning after integrally molding and converting mineral phase CaO to CaCO₃ via an anti-hydration treatment.

II. Claims 6-13, drawn to a method of producing an immersion nozzle that includes the steps of providing an immersion nozzle body, then applying first and second mixtures prior to anti-hydration treatment.

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or

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employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the

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prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 6-13 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to independent claim 3, the method "to prevent cracks from occurring..." does not set forth any distinct steps involved in the method/process, and it is unclear what method/process the applicants are intending to encompass.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-132755 (complete translation provided with this Office Action) in view of JP 61-256961 (complete translation provided in the final rejection mailed June 26, 2007).

JP 63-132755 (see abstract; pages 1-4 of translation; and Figures 1a and 1b) discloses an immersion nozzle situated adjacent a molten metal level of a continuous casting apparatus (as a portion of a ladle or tundish for casting of molten steel) and a method of the manufacture of the nozzle, in which the method includes integrally molding and burning/applying a refractory compound that includes graphite, CaO, and

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zirconia to an inner hole wall 4 of the nozzle 1 to form a coating layer 2 (Figure 1), with one embodiment including the use of calcia-magnesia clinker particles (80 wt% CaO and 20 wt% MgO of Application Example 1 -- see page 3 of translation), such that the coating layer 2 includes 50-100% CaO-quality refractory (i.e. more than 10% by mass of clinker particles) that prevents precipitated alumina in the molten steel from clogging the nozzle 1, in which "100% CaO-quality refractory" would be considered as (free, independent) mineral phase CaO since it is 100% (essentially pure) CaO (abstract; Japanese text; pages 1-4 of translation; and Figures 1a and 1b). JP 63-132755 does not disclose using an anti-hydration treatment on the (outside) surface of a portion of the CaO-containing clinker particles, which includes CaO conversion to CaCO_3 .

However, JP 61-256961 (see translation) discloses a calcitic clinker that comprises CaO and a covering layer of CaCO_3 on its surface, with the CaCO_3 being carbonated (anti-hydration treatment) by heating of CaO in an atmosphere containing CO_2 , and allowing conversion to CaCO_3 , for the purpose of obtaining a calcitic clinker having high resistance to slaking/crumbling (abstract; and pages 6-24 of translation).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the continuous casting immersion nozzle and method for its production, as disclosed by JP 63-132755, by using the anti-hydration treatment on the (outside) surface of a portion of the CaO-containing clinker particles, which includes CaO conversion to CaCO_3 , as taught by JP 61-256961, in order to obtain a calcitic clinker having high resistance to slaking/crumbling (JP 61-256961;

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abstract; and [Means of Solving the Problems] and [Effect of the Invention] sections on pages 7 and 24 of translation, respectively).

Response to Arguments

7. The examiner acknowledges the applicants' amendment received by the USPTO on June 23, 2008. The applicants are referred to new sections 1-3 (election/restrictions and 35 USC 112, 2nd paragraph rejections) that were raised by the addition of new claims 3-13. Claims 6-13 are withdrawn from consideration for the reasons set forth in above section 1. Claims 1 and 3-5 are currently under consideration in the application.

8. Applicants' arguments with respect to claims 3-5 have been considered but are moot in view of the new ground(s) of rejection.

9. Applicants' arguments filed June 23, 2008 (regarding independent claim 1) have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments on pages 6-8 of the amendment, it is noted that the newly underlined portions of the above 35 USC 103(a) rejections are provided in response to the amendments and receipt of the complete translation of JP 63-132755. Regarding the arguments in the paragraph bridging pages 6 and 7 of the remarks section, these arguments are generally attacking the references individually by stating "JP 63-132755 does not recognize the problem identified in the present invention nor does it disclose nor suggest the anti-hydration treatment to

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prevent cracking...” and “the Office Action has not identified a problem disclosed in JP 63-132755 that would be addressed by the invention of JP 61-256961”. Although the examiner agrees that JP 63-132755 does not disclose the an anti-hydration treatment, the examiner respectfully disagrees that JP 63-132755 is required to “recognize the problem identified in the present invention” and identify “a problem disclosed in JP 63-132755 that would be addressed” by JP 61-256961. Although the disclosure of JP 63-132755 did not specifically identify “slaking” as a problem, identification of this particular problem is not required in combining references under 35 USC 103(a). Instead, JP 63-132755 discloses the problem of preventing clogging of the nozzle (due to inclusions and particles). Moreover, JP 61-256961 provides the motivation of reducing slaking/crumbling, of which would produce particles (from crumbling), thus also potentially resulting in clogging and a final cast product of reduced quality. Despite the applicants' discussion and analysis of the KSR standard for obviousness, the examiner respectfully disagrees that the applicants have adequately considered what one of ordinary skill in the art would have recognized upon knowledge gleaned from the combined teachings of both references, rather than individual analysis of each reference. In response to applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Regarding the applicants' argument (in the paragraph bridging pages 7 and 8 of the remarks section) that addresses the “100% (essentially “pure”) CaO-quality

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refractory”, it is noted that the translation of JP 63-132755 galvanizes the presence of “100 wt% CaO” set forth in the abstract (see translation -- under Claim on page 1, under Means to solve the problems on page 2, and in the 1st paragraph on page 3 – that also states that a reduced amount (<50% CaO) reduces the positive effects of the invention). As a result of the express disclosure of 100 wt% CaO in JP 63-132755, such disclosure meets the standard of inherency, thus being “necessarily” present. Finally, a “portion” of the immersion nozzle situated adjacent a molten metal level of a continuous casting apparatus (as a portion of a ladle or tundish for casting of molten steel), as set forth in the discussion of JP 63-132755 in the 35 USC 103(a) rejections section, defines the powder-line portion of the nozzle (as applicants argue in the 1st full paragraph of page 8 of the remarks section). As a result, a *prima facie* case of obviousness is established upon combining the teachings of JP 63-132755 in view of JP 61-256961.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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August 23, 2008